

Booms, Bins and Bags.

Paddle for the Planet – DUCT

Paddle 4 the Planet made a donation of R60 000 to DUCT in 2016, which was allocated towards a project to reduce the amount of litter flowing down into the sea from the uMngeni River.



Litter boom and cage, a strategic intervention on the uMhlangane River.

Booms, Bins and Bags was a phrase used for the project. The idea was to implement a boom across a section of the Mhlangane river. The above image shows how well the boom works in trapping the litter after 20mm of rain in the catchment.

The Sea Bin concept was toyed with but is more suitable for still water than a flowing river. This is best implemented in a harbour situation.



The bags referred to, are ones that can be attached to the end of storm water pipes so as to trap the litter, but to allow the water to flow through the net bag.



A litterboom and a cage were designed and installed on the uMhlangane River, a tributary to the uMngeni. The uMhlangane catchment covers a vast area which includes Kwamashu, most of Ntuzuma, Phoenix Industrial Park, Avoca, Quarry Heights, River Horse Valley, Sea Cow Lake and the N2 highway. This catchment had been identified as a massive source of solid waste pollution and thus the new litterboom was strategically placed at a site easily accessible by both staff to clear the boom, and vehicles to remove the collected waste.

The design of the cage was gleaned from information on the internet, using the Bandalong Litter trap as a basis. (<http://stormwatersystems.com/bandalong-litter-trap/>)



The P4P litter cage was designed at 1.8 X 2.4 X 0.8m, made from mild steel and then galvanised. PVC pipes (150mm diameter), sealed at the ends were used as flotation but were found to be inadequate to float the cage sufficiently. 4 X 20 litre plastic containers were then attached to the cage which was then adequate flotation for the contraption.

The cage was anchored in the river with steel cables attached to submerged concrete blocks so that it could not be moved around by both the current and the wind.



Flotation using both PVC pipes and 20 litre containers.



90mm HDPE pipes were used as the flotation guides which were capped at the ends.

The 90 mm HDPE pipe guides were a step up from the previous 63mm HDPE pipe used and appear to trap a lot more litter than the smaller pipes. It is possible that the stronger flowing water would push more of the plastic over the 63mm pipes.



Litter stacked up against the 90mm HDPE pipe.

After the cage was put in place in October 2016 it has effectively trapped the litter washed down after rainfall episodes. January 2017 saw the team extract enough litter to fill 230 garbage bags.

In March 2017 a floating bridge was re installed about 800m downstream of the P4P cage, and this bridge also works as an effective boom trapping more of the litter that has straddled the P4P boom.



Floating bridge – litterboom near SPCA on uMhlangane.

At least 10 cubic metres of plastic waste was collected in April 2017 from this bridge boom after 20mm rain in early April.



Litter accumulated against the boom includes the insides of fridges, stripped for the steel content. Dead dogs and goats are also regularly trapped by the boom. Poles and tree trunks are also extracted from the boom.



The enormous amount of waste collected since the boom was installed.

This Litter cage is a trial and whilst it might be suitable in low volume situations, the amount of litter carried by the river even with a 20mm rainfall episode far exceeds the capacity of the cage. As can be seen in figure 1, the cage is not full as it is blocked by the bigger items. The 90mm HDPE pipe does the work of trapping the litter adequately. By installing a few more 90mm HDPE litter booms further upstream in the wider slower flowing water, the combined efficiency of the would improve. Suitable sites higher up the catchment need to be assessed and booms implemented so as to reduce the total volume of litter carried by the river. These booms however only trap floating litter and not the submerged items like plastic bags.



Litter cage and boom dislodged after 200mm of rain in catchment. Can be reinstalled after water subsides.

A system designed to trap submerged objects is more susceptible to damage by large objects such as trees, logs and poles, as well as the possibility of clogging up with objects underwater and then breaking due to the forces of the water current in higher flow situations.

DUCT in Partnership with Paddle 4 the Planet			
Project Name : Booms, bins and Bags			
Costs	Description	Budget	March 2017
Project set-up	Project set-up	10 000	10 000
Cage		7 000.00	7000.00
Pipes	48m @ R100 per m	5 000.00	5000.00
Stainless steel cable	70 m @	3 000.00	3000.00
End caps		5 000.00	5000.00
Installation		4 000.00	4000.00
63mm HDPE diversion	X 300m for reed bed protection	8 000.00	8000.00
Labour - DUCT	2 staff days X 52 weeks (each working 1 day p/week)	12 000.00	12000.00
Maintenance and management	(Bart Fokkens)	6 000.00	6000.00
		60 000.00	60000.00

Project Funding Received	60 000.00
Project Funding Utilised	60 000.00
Balance	-

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Litter booms halt rubbish deluge
 More than 600 kilograms of rubbish including plastic bottles, pockets, debris and even household appliances were stopped from polluting the uMngeni River. *has more on page 1*

More than 600 kilograms of rubbish including plastic bottles, pockets, debris and even household appliances were stopped from polluting the uMngeni River. *has more on page 1*

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 PACT is a volunteer organisation that works to protect animals in the Durban area. We have a number of projects in progress and we are looking for more volunteers. Contact us on 031 551 1307 or visit our website at www.pact.org.za

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Litter booms halts rubbish deluge

THOUSANDS of pieces of litter, debris including rotting branches, and other forms of rubbish have made the surface of the uMngeni River look like a rubbish dump after the heavy rains on Tuesday last week.

However, the litter booms which were installed at different points along the uMngeni River and along some of the tributaries have made a massive difference, stopping the rubbish from spreading.

According to Bart Fokkens, who is part of the Dusi Umgeni Conservation Trust (DUCT), an organisation that champions the environmental health of the uMngeni and adjacent rivers, around 600 kilograms of rubbish have been collected by Fokkens and his team.

The Glenashley resident, through the organisation, installed three litter booms in different parts of tributaries leading into the uMngeni River. The litter booms act as a litter trap funneling rubbish into a cage.

The organisation maintains the booms and bags the waste they catch. DUCT members, using a Canadian-style canoe, are then able to use a pool like scoop to grab the rubbish on the surface and then simply clean the cage out. They then leave the bags of rubbish for the Parks department to collect.

"Thanks to the article in this week's Northglen News, the Bridgevale Parks Department has supplied us with 500 bags to collect the rubbish in. We had around 600 kilograms of rubbish collected, much of it in plastic sealed down driver. Nkonontsha Shezi of Envirohobbies has been kind enough to help with the rubbish collection from this cluster-up," he said.

Fokkens also explained how the booms work. "The big pipes attached to the boom divert the rubbish into the cage. We have set up a number of booms that we use to catch the litter so we can clear it out. What is also encouraging is these booms also serve as a way of stopping the spread of water hyacinth," Fokkens added.

"These booms are fantastic in that they trap any debris or rubbish here before it washes down to the beaches and ultimately, into the ocean."

Man arrested for Riverside Road hijacking

A MAN was arrested after a hijacking on Riverside Road on Tuesday afternoon.

The suspect also forced the occupants of the vehicle to drive him to an ATM in the area. The suspect was found in possession of a firearm and live ammunition.

Marshall Security's Kyle van Rensen, said the incident occurred at about 1pm.

"We were called to a fuel station on Old Mill Way, after a man was spotted in a vehicle pointing a firearm at the driver. It was later discovered the suspect hijacked the husband and wife on Riverside Road, instructing the driver to drive to the fuel station to withdraw money from the ATM.

"The suspect attempted to flee on foot and was arrested by Marshall Security reaction officers. The man was found in possession of a firearm as well as live ammunition," he said.

EMERGENCY NUMBERS

Ambulance National 911 Durban 031 551 1307 EMS Durban 031 551 1307 Durban 031 551 1307 Durban 031 551 1307	Police Durban 031 551 1307 Durban 031 551 1307 Durban 031 551 1307 Durban 031 551 1307
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Netcare uMhlanga Hospital
 24 HOUR EMERGENCY DEPARTMENT & STROKE CENTRE
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Bart Fokkens of DUCT, shows off one of the litter booms installed on the Umhlangane tributary. The booms stop rubbish from ending up in the uMngeni River.

Litter booms lead the fight against pollution

PLASTIC, polystyrene and other forms of litter are harming Durban's rivers where it is accumulating in large amounts. Much of the litter debris found in our rivers end up in the sea.

A recent study suggested there are one trillion pieces of rubbish floating around the Indian Ocean alone. That's where Bart Fokkens, who is part of the Dusi Umgeni Conservation Trust (DUCT), an organisation that champions the environmental health of the uMngeni and uMsunduzi Rivers, comes in.

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The organisation maintains the booms and bags the waste they catch. DUCT members, using a Canadian-style canoe, are then able to use a pool like scoop to grab the rubbish on the surface and then simply clean the cage out.

"The big pipes attached to the boom divert the rubbish into the cage. We have set up a number of booms that we use to catch the litter so we can clear it out. What is also encouraging is these booms also serve as a way of stopping the spread of water hyacinth," Fokkens adds.

"The uMsunduzi and Umgeni River systems have become badly degraded through neglect and over exploitation. These booms are fantastic in that they trap any debris or rubbish here before it washes down to the beaches and ultimately, into the ocean," he said.